REMARKS

This amendment is submitted in response to the Office Action dated September 14, 2005. Claims 4, 13, and 22 have been amended herein and claims 1-27 remain pending. No new matter has been added, and the amendments place the claims in better condition for allowance.

CLAIMS REJECTIONS UNDER 35 U.S.C. § 101

Claims 1, 10, and 19 have been rejected under 35 U.S.C. § 101 as being merely directed to an abstract idea not tied to a technological art, environment, or machine which would result in practical application producing a useful, concrete, and tangible result. Applicants respectfully disagree. Specifically, Applicants disagree with the assertion that the term "job" as utilized in the claims could be interpreted as merely an abstract idea. The plain meaning of "job" in the context of a claim that recites "job execution means" is some form of discrete task (as opposed to the usage of "job" as designating a persons occupation. The specification includes numerous characterizations and examples of "jobs" supporting the "plain meaning" claim interpretation, rendering the reasonable interpretation of "job" to be any discrete task executed by "job execution means" (see page 6, line 11- page 7, line 16, describing job execution means for executing jobs; describing a main computer unit, a server, a personal computer, anti-virus programs, a tape drive and function diagnosis program for predicting occurrences of tape drive failure as examples of job execution means; see Figure 1, depicting jobs 14 and 15 being executed by job execution means 13.) Applicants urge that interpreting "job" as just an abstract idea is facially unreasonable in view of the numerous concrete characterization of the term in the claim itself (i.e. recited job execution means) and in Applicants' specification.

Applicants further disagree with the characterization on page 2 of the Office Action that claims 1, 10, and 19 claims a "probability distribution function" in an abstract manner. In fact, claim 1 recites "probability distribution forming means for determining a probability distribution in accordance with times at which execution of said first job occurs." Means for determining a probability distribution in accordance with a specified criterion is clearly not a mere abstraction but instead qualifies as a concrete entity producing a tangible result.

Applicants disagree with the assertion on page 3 of the Office Action that independent claims 1, 10, and 19, and associated dependent claims 2-9, 11-18, and 20-27 include only

software features without means, such as data processing means, for performing functions. Claim 1 expressly recites elements including "job execution means for executing a plurality of jobs ...", "probability distribution forming means for determining a probability distribution ...", and "execution timing means for scheduling execution of said second job ..." The method steps recited in independent claim 10 similarly are not expressions of mere abstract phenomena such as thinking, but instead express concrete steps of "executing a plurality of jobs ...", "determining a probability distribution ..." and "scheduling execution of said second job ..."

Applicants disagree with the assertion on the bottom of page 3 that in order to comply with the requirements of 35 U.S.C. § 101, the claim language must expressly include computer hardware for performing the recited functions. Applicants further disagree with the assertion at the bottom of page 4 that the claims are not supported by either a specific and substantial utility or a well-established utility. In fact, claims 1, 10, and 19 expressly recites a system/method/computer program product "for controlling executing timing of jobs" which is clearly a well-established utility. Moreover, each of claims 1, 10, and 19 include steps in which jobs are executed at specifically characterized time intervals, a probability distribution is determined in accordance with the occurrences of specified jobs, and a second category of jobs is executed in accordance with the determined probability distribution.

CLAIMS REJECTIONS UNDER 35 U.S.C. § 112

Claims 1-27 have been rejected under 35 U.S.C. § 112, first paragraph, as not being supported by either a specific and substantial utility or a well established utility and that one skilled in the art would not know how to use the invention. Applicants disagree with the foregoing rejections for the following reasons as well as those set forth above traversing the rejections under 35 U.S.C. § 101. In FIG. 1, Applicants have provided a high-level block diagram illustrating a job execution apparatus containing all of the major features recited in the claims. Furthermore, the specification is replete with concrete and exemplary characterizations of the various entities such as jobs and job execution means. Applicants contend that one skilled in the art would clearly understand that some form of data/program processing device (such as the computer, personal computer, server, etc. described in the specification) would be used to perform the probability distribution forming, execution timing, and job execution. Applicants

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thus believe the foregoing rejections under 35 U.S.C. § 112, first paragraph are not well-founded and should be reversed.

Claims 1-27 have been rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. For the foregoing reasons traversing the rejections under 35 U.S.C. § 101 and 35 U.S.C. § 112, first paragraph, Applicants urge that while specific computer hardware may, in accordance with the numerous examples provided in the specification, be used to implement the claimed invention, 35 U.S.C. § 112, second paragraph does not require a recitation of specific computer hardware components.

Claims 4, 13, and 22 have been amended to replace the highly relative term "about" with the more precise term "approximate."

Regarding claims 7, 16, and 25, Applicants note that the recited "reference value" is described in the specification as being a value specifying a duration (e.g. 10 seconds is a value specifying a duration). Applicants agree, however, with Examiner's concern and have amended claims 7, 16, and 25 to replace "reference value" with "reference duration value" to clarify the claim and remain consistent with the specification language. Furthermore, "execution processing" has been replaced by "execution" for clarity and consistency with the independent claims.

With continued reference to claims 7, 16, and 25, the phrase "execution means from executing the second job" is an incomplete expression of the claim element feature which recites "execution inhibition means for inhibiting said job execution means from executing the second job until a condition: $t > Tmax$ is satisfied..." Applicants contend that this phrase is manifestly meaningful.

For the foregoing reasons, Applicants urge reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, first paragraph, and 35 U.S.C. § 112, second paragraph.

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CLAIM REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-2, 10-11, and 19-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,819,232, issued to Shipman (hereinafter *Shipman*). Applicants traverse the foregoing rejections for the following reasons.

As amply explained in Amendment A, Applicants' invention is directed to controlling execution sequencing (i.e. scheduling) of multiple jobs some of which occur irregularly, such as read/write memory accesses, and some of which occur at regular time intervals, such as system diagnostic applications. In particular, the invention includes means and steps for scheduling the regularly occurring processes in accordance with predicted patterns of occurrence of the irregularly occurring processes in a manner that minimizes scheduling conflicts and maximizes scheduling throughput. For example, independent method claim 10 comprises, in part, a step of determining a probability distribution in accordance with times at which the irregularly occurring job is executed, and further includes a step of scheduling execution of said second job in accordance with said probability distribution. In this manner, the probability distribution determined from the irregular occurrences of the first, irregular-type job is used as the guidepost for more effectively scheduling the second, regularly occurring job.

Shipman discloses a system/method that uses a forecasting technique to schedule future supply in accordance with predicted demand. *Shipman's* failure to disclose or suggest anything relating to scheduling in accordance with whether the tasks or jobs are regularly or irregularly executed is critical since it is the regular/irregular execution pattern that is fundamental to Applicants' proposed invention. Since *Shipman* fails to disclose regularly and irregularly scheduled jobs, *Shipman* cannot disclose "job execution means for executing a plurality of jobs, wherein said plurality of jobs includes a first job executed at irregular time intervals and a second job executed at regular time intervals." Furthermore, without disclosing jobs executed at an irregular time intervals, *Shipman* cannot possibly disclose probability distribution forming means for determining a probability distribution in accordance with times at which execution of said first (i.e. irregularly executed) job occurs. Likewise, *Shipman's* lack of disclosure relating to scheduling regularly executed jobs versus irregularly executed jobs compels a conclusion that *Shipman* does not disclose or suggest execution timing means for scheduling execution of said second (i.e. regularly scheduled) job in accordance with said probability distribution. *Shipman's* failure to discuss the *distinction* between regularly and irregularly scheduled tasks as it relates to

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the system's functionality is a critical gap since Applicants' proposed invention is fundamentally based on such a distinction and processing steps performed pursuant to such a distinction.
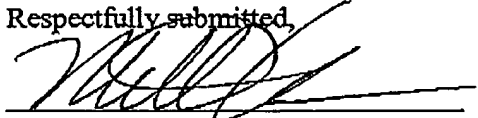
Page 6 of the Office Action asserts that *Shipman's* teaching of calculating probability distribution functions of jobs which may occur at any time (regularly or irregularly) would render Applicants' proposed invention obvious to one skilled in the art. Applicants urge that it is the very non-distinction between scheduling of regularly versus irregularly executed jobs that most clearly illustrates the vast difference between *Shipman's* method and the invention which would not be bridged by an obvious or even a non-obvious modification of *Shipman*.

Nothing in *Shipman* or any other art known to Applicants discloses or suggests, either individually or in combination, steps of determining a probability distribution in accordance with times at which execution of an irregularly occurring first job occurs, and scheduling execution of a regularly occurring second job in accordance with the so-determined probability distribution, as recited by Applicants independent claims 1, 10, and 19. Applicants thus contend that claims 1, 10, and 19 and all claims depending therefrom are not rendered obvious by the disclosure of *Shipman*.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the pending claims have been placed in condition for allowance and favorable action is respectfully requested. Applicants invite the Examiner to contact the undersigned attorney of record at (512) 343-6116 if such would further or expedite the prosecution of the present Application.

Respectfully submitted,

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